

ABSTRACT

ANTI-INFLAMMATORY EFFECT OINTMENT OF ETHANOL EXTRACT OF BAKAU MINYAK (*Rhizophora apiculata*) ON THE BACK SKIN OF MALE BALB/C STRAIN WHITE MICE (*Mus musculus*) INJECTED WITH CARRAGEENAN

By

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Background: Anti-inflammatory compounds play a role in inhibiting the migration of leukocyte cells to inflamed areas and in inhibiting the formation and release of inflammatory mediators. Anti-inflammatory compounds are widely found in natural plants, one of which is the mangrove plant. This study aims to determine the anti-inflammatory effects of administering mangrove bark extract ointment on the dorsal skin of male white mice injected with carrageenan.

Method: This study used a posttest control only group design on 30 mice divided into six groups over 7 days. The normal group was only given food and drink ad libitum. Meanwhile, all groups were injected with 6% carrageenan twice, along with the test preparations K+ (Ketoprofen gel), K- (Ointment base), and ointment of 20% (P1), 30% (P2), and 40% (P3) concentrations of ethanol extract of mangrove bark oil. The anti-inflammatory method used involved the formation of granuloma bags and edema on the dorsal skin of mice with carrageenan injection. Data analysis used the *Shapiro-Wilk* normality test, *Levene's* homogeneity test, followed by *One-Way ANOVA* and *Kruskal-Wallis* test, as well as the *post hoc LSD* test.

Results: The results of the normality and homogeneity analysis showed that all were normally and homogeneously distributed ($p > 0.05$), except for the edema diameter on day 1. The bivariate results showed a significant difference ($p < 0.05$) between K-, K0, K+ P1, P2, and P3 in terms of edema diameter, leukocyte count, and leukocyte differential count.

Conclusion: There is an anti-inflammatory effect of administering a 20%, 30%, and 40% concentration of ethanol extract mangrove bark *Rhizophora apiculata* ointment on the reduction of edema diameter, leukocyte count, and leukocyte differential count, which includes a decrease in lymphocytes and neutrophils; an increase in monocytes.

Keywords: Anti-inflammatory, carrageenan, *Rhizophora apiculata*

ABSTRAK

UJI EFEK ANTIINFLAMASI PEMBERIAN SALEP EKSTRAK ETANOL KULIT BATANG BAKAU MINYAK (*Rhizophora apiculata*) PADA KULIT PUNGGUNG MENCIT PUTIH (*Mus musculus*) JANTAN GALUR BALB/C YANG DIINJEKSI KARAGENAN

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Latar Belakang: Senyawa antiinflamasi berperan dalam menghambat perpindahan sel leukosit ke daerah radang dan pembentukan serta pelepasan mediator inflamasi. Senyawa antiinflamasi banyak ditemukan pada tumbuhan alam, salah satunya tumbuhan bakau minyak. Penelitian ini bertujuan untuk mengetahui efek antiinflamasi pemberian salep ekstrak kulit batang bakau minyak pada kulit punggung mencit putih jantan yang diinjeksi karagenan.

Metode: Penelitian ini menggunakan rancangan *posttest control only group design* pada 30 mencit yang dibagi menjadi enam kelompok selama 7 hari. Kelompok normal hanya diberi makan dan minum *ad libitum*. Sementara itu, seluruh kelompok diinjeksi karagenan 6% sebanyak 2 kali dan sediaan uji yaitu K+ (Ketoprofen gel), K- (Basis salep), salep ekstrak etanol kulit batang bakau minyak dengan konsentrasi 20% (P1), 30% (P2), 40% (P3). Metode antiinflamasi yang digunakan berupa pembentukan kantong granuloma dan edema pada kulit punggung mencit dengan injeksi karagenan. Analisis data menggunakan uji normalitas *Shapiro-Wilk*, uji homogenitas (*Levene*), kemudian uji *One-Way Anova* dan uji *Kruskal-Wallis* serta uji *post hoc LSD*.

Hasil: Hasil analisis normalitas dan homogenitas didapatkan semuanya berdistribusi normal dan homogen ($p > 0,05$), kecuali pada diameter edema hari ke-1. Hasil bivariat menunjukkan perbedaan yang signifikan ($p < 0,05$) antara K-, K0, K+ P1, P2, dan P3 terhadap diameter edema, jumlah leukosit, dan gambaran hitung jenis leukosit.

Kesimpulan: Terdapat efek antiinflamasi pemberian salep ekstrak etanol kulit batang bakau minyak pada konsentrasi 20%, 30%, dan 40% terhadap penurunan diameter edema, jumlah leukosit serta gambaran hitung jenis leukosit yaitu penurunan limfosit dan neutrofil; peningkatan monosit.

Kata kunci: Antiinflamasi, bakau minyak, karagenan.